Eye Contact Device

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TOOLS:

- Drill (1)
- Headset (1)
- Hole saw (1)
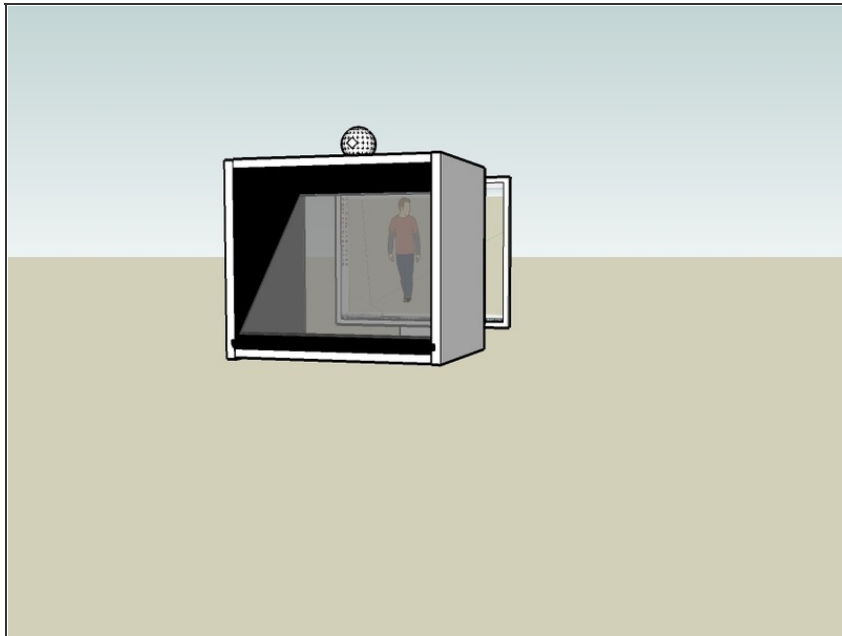- Table saw (1)
- USB webcam (1)
- Videoconferencing software (1)
- WebcamDV software (1)

PARTS:

- Box-making materials (1)
- Dowel (1)
- Semi-reflective pane (1)
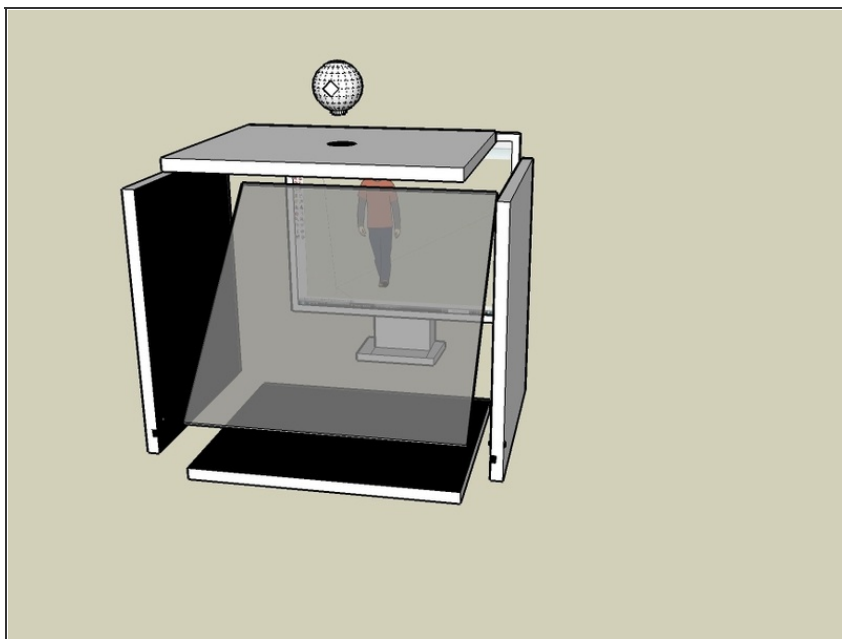- Paint (1)
- Lazy Susan (1)
- Spy lens (1)

SUMMARY

Services like Skype let you videoconference for free, but it never feels like a natural conversation. You see the other person staring down at the computer screen rather than looking at you. We humans are wired to look each other in the eye while we talk, at least occasionally, and when someone doesn't, it's only natural to wonder if they're hiding something. Here's a setup that I use to make videoconferencing feel more like real face-to-face communication.

Step 1 — The Teleprompter Principle

- My device is simply a box, open at each end, with a piece of glass splitting it diagonally and a hole in the top for a camera. It follows the same principle that teleprompters use to display text to on-camera presenters.

Step 2 — Create a box

- Size the box to just fit around your computer screen, and make it as deep as the screen is high. I used 5/8" particleboard shelving material, dowel pegs, and glue.
- The dowel runs across the bottom of the box to hold the mirror in, and you may need additional length to cut into pegs for joining the box.
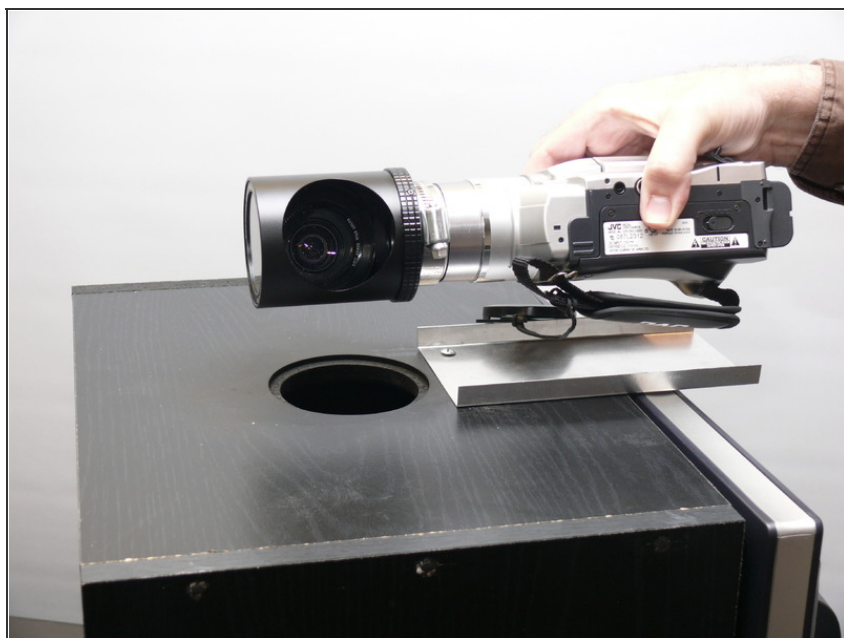
Step 3 — Cut a hole in the top of the box

- Center a hole in the top that's large enough to give your webcam an unobstructed view of the mirror, and coat the interior with flat black paint to eliminate reflections.

Step 4 — Set the reflective pane

- For best results, use half-silvered glass or plexiglass, but a regular clear pane will also work, for one-tenth of the price.
- The reflective pane should match the width of your screen, and be $\sqrt{2}$ (about 1.4) times as tall.
- To hold it, I cut diagonal slots with a table saw about ¼" deep into the sides of the box, on the inside.
- I also drilled holes and ran a dowel along the bottom, to keep the mirror from sliding out.
- To cushion it, I tucked pipe insulation into the gap between the bottom edge of the mirror and the box.

Step 5 — Set up the Camera

- For the camera, USB webcams are probably the best choice for family conferencing, since their wide-angle lenses will include everyone. For conferences between individuals, using a camcorder (with WebCamDV software) has the advantage of letting you zoom in; the software routes the camera's FireWire output to your videoconferencing application.
- You can point the camera straight down the hole, but I now use an SLR camera spy lens (a right angle adapter) to fold the optical path like a periscope. This has the additional advantage of righting the image.

Step 6

- With your computer screen in back of the box and your camera on top, you're ready to go. Your friends will see you looking directly into their eyes. Yes, it's clunky, but no more so than those CRTs we used not so long ago.

This project originally appeared in MAKE Volume 19.

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